



c151 USER MANUAL

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PRESENTATION

Thank you for choosing a dot marking system (also called micro-percussion) for your marking applications.

SIC MARKING systems contribute to improve the tracability of your products while complying with the industrial standards.

We would like to welcome you as a user of our systems.

This guide contains the installation and use instructions of the dot marking type machines. We recommend that you read it carefully before installing the system.

Please contact our technical department for any further information.

INSTALLATION AND START-UP

1. UNPACKING

Except if we deliver the system, it is generally supplied in an appropriate packaging, which needs to be kept for any return of the material.

Remove the sub-systems carefully (controller, control handbox, possible options ...) from their packages.



The machine should only be lifted by the column and the base ; it should never be lifted by the head housing.
Weight of the machine : 35 kg

2. INSTALLATION

2.1. Fastening

- ✓ Column-type machines
 - Install the machine on a rigid and stable support frame
 - After installing the entire marking machine, fasten the base with 2 M10 screws.
- ✓ Integrated-type machines
 - Install the machine on a rigid and stable support frame
 - Fasten the marking head onto the machine by complying with the indications of the integration plan, **available thread length 12 mm max.**
- ✓ Portable-type machines
 - No fastening : marking gun designed to be held manually

Note : The integrated and portable type machines are designed to function in all positions (vertical, horizontal, stylus towards the bottom or the top)

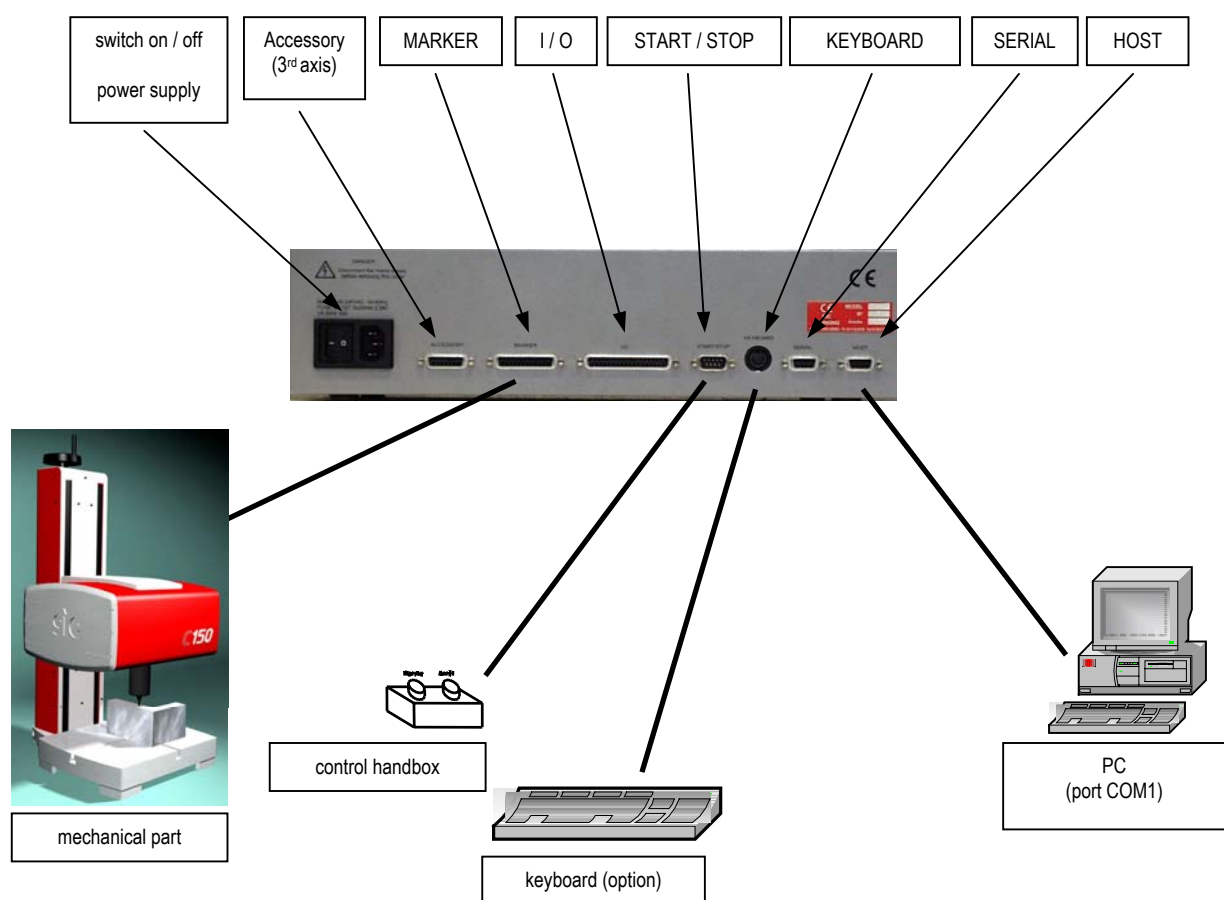
2.2. Connections

- Using the SUB-D 25 connector, connect the marking machine to the "marker" connector located at the rear of the controller. For the integrated type machines, proceed the same way using a connection cable.
- Correctly fasten the screws of the connector.

Note : for more details about the connections, please check the controller manual.



Never unplug the controller when it is under tension as it may seriously damage the material.



USE OF THE MACHINE

1. SAFETY



An intense use may cause the temperature of the system to rise up to 100°C.



It is recommended to wear safety glasses.



It is also recommended to wear a noise reducing helmet.

Acoustic value of the machine : 76 dB on a piece of steel at medium speed



The marking system should never be used without any surface to mark as the marking head may break.

2. CONTROLLER

See software manual

3. SOFTWARE

See software manual

4. MARKING MACHINE

4.1. Positioning and clamping of the part to be marked

Even if the part is not submitted to high forces, it is necessary to immobilize it in order to reach an optimal marking quality.

Depending on the type of parts and the working conditions, the clamping system can vary from the simple manual fastening of the part against an angle iron (bracket) to the mechanical, magnetic or pneumatic fastening.

When using a marking gun, place the universal non-skid support against the surface to be marked and manually hold the gun during the marking.

The fastening device should maintain the part so that the stylus movements are parallel to the surface to be marked.

For the portable type machines, if the marking is always conducted on the same type of parts, we advise you to make a customized tooling to always keep the same marking position.

4.2. Machine adjustment

The marking quality highly depends on the part to be marked ; a smooth and flat surface is much easier to mark than a rough and irregular surface.

It is generally necessary to adapt the marking force to the height of the character. The smaller the character is, the lower the impact has to be to obtain a good legibility. The software also enables to choose various widths for the marking matrix.

To obtain a good marking quality, it is fundamental to adjust the force and the distance. When using marking guns, the distance between the stylus and the part can be modified by adjusting the position of the front plate.

For your information, hereafter are some values about the distance between the stylus and the part depending on the marking force :

Force	1	2	3	4	5	6	7	8	9
Minimum distance	0.5	0.5	0.5	1	1	2	3	5	6
Maximum distance	1	2	3	5	6	7	9	9	9

Maximum distance between the stylus and the part : 9 mm
--

We recommend that you make trials before marking a new part.

4.3. Launch / Stop the marking

- Set the controller in marking mode (for more information, please see the software manual)

- Position the part to be marked
- Launch the marking by pressing the "Start" button on the control handbox or the "Marche" button on the gun handle (portable type machine)
- To stop the marking, press the "Stop" button on the control handbox or press the "Marche" button of the gun handle for more than 2 seconds.

MAINTENANCE

1. INTRODUCTION

Dot marking machines have been developed and realized especially to meet the needs of our clients who want a machine which is :

- Performing,
- Robust,
- Reliable,
- Ergonomic.

It requires very little maintenance and if you observe the preventive maintenance recommendations, you will *increase the life-expectancy* of your machine.

However, if a problem of any kind should occur, please refer to this manual, which will help you solve the problem.

2. AFTER-SALES SERVICE

Please contact our local distributor first.

To find out about our local distributor, you can check our website :

www.sic-marking.com

If you can not reach our distributor, please call SIC MARKING at +33.4.72.54.80.00.

SIC MARKING or its distributor offer the following services :

✓ Phone support

Please do not hesitate to contact us for any technical problem.

✓ On-site intervention

We can help you install, set up the machine on-site, as well as repair it and provide personal training.

✓ Maintenance contract

Thanks to the maintenance contract, we provide regular maintenance of your marking machine.

3. PREVENTIVE MAINTENANCE

If you want to keep your machine in a good working condition, it is necessary to do the following actions :

- **clean** the stylus pin guide and the stylus assembly regularly
- **avoid** dust and abrasive particles on the guiding and driving elements

How to clean the stylus pin guide and the stylus assembly

- Unplug the marking machine
- Unscrew the stylus pin guide (see General layout of the stylus assembly in appendix)
- Remove the stylus, the spring and the core
- Clean all parts and remove the grease
- **Lubricate the stylus and the stylus pin guide using exclusively the oil supplied with your maintenance kit.**
- Reassemble the machine and **manually fasten the stylus pin guide**

Note : please pay attention to the direction when reassembling the core (see General layout of the stylus assembly in appendix)

4. TROUBLE SHOOTING

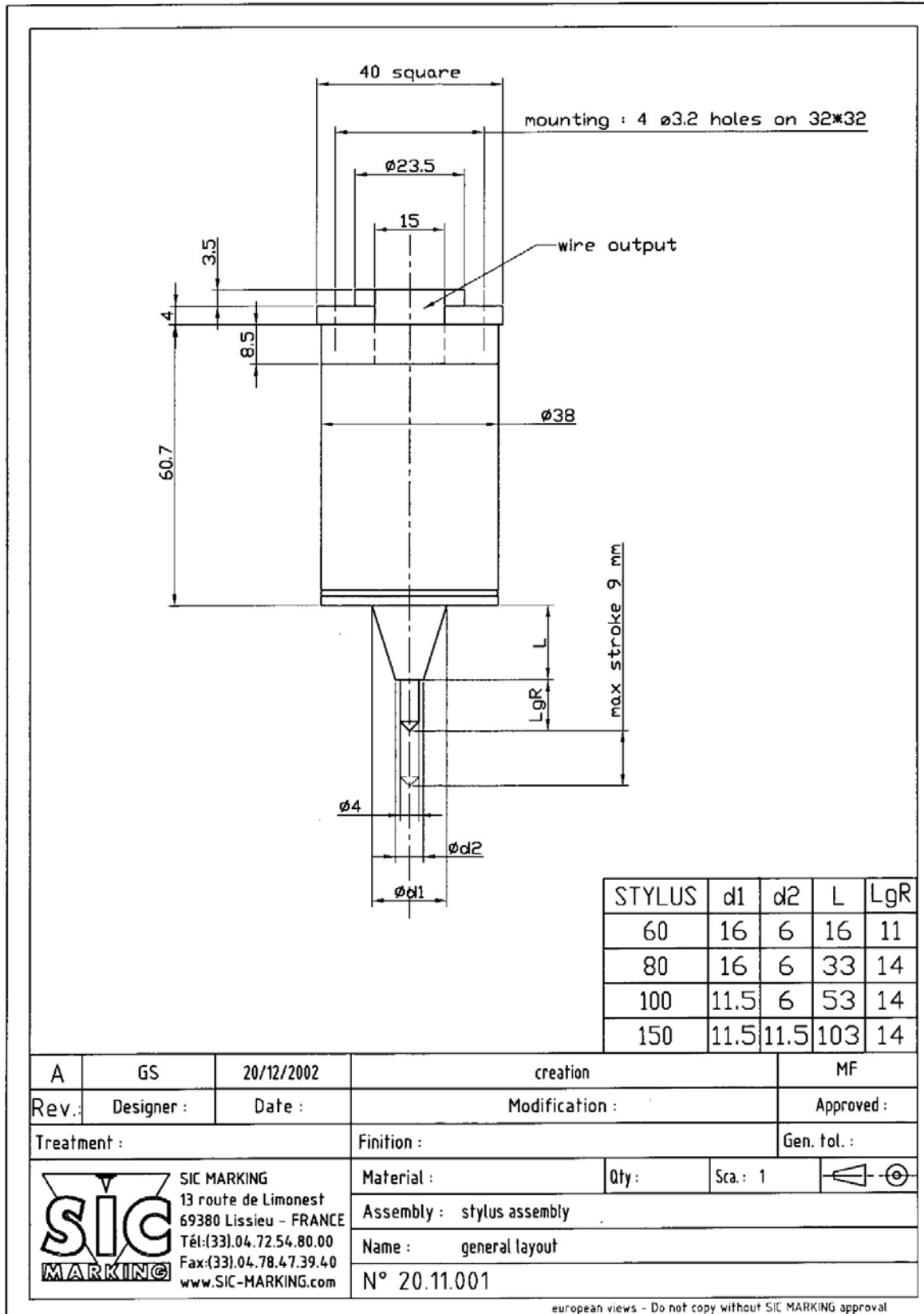
Problem	Check	Solution
The stylus assembly does not move on the X and Y axes	Check that : <ul style="list-style-type: none"> - The controller is on - A marking program is loaded and the controller is in marking mode (see software manual) - The machine is correctly linked to the controller - The cable is in working condition - The control handbox is connected (except for gun marking machines) - The movements on the X and Y axes are not blocked when the machine is on. 	<ul style="list-style-type: none"> - See controller manual - Load a program and set the machine in marking mode - Reposition the connectors - Open the connectors and check the wires either visually or with a ohmmeter. - Reposition the connectors - Remove any obstacle or clean the guiding rails and the driving mechanisms
The marking head does not go back home before marking	Check that : <ul style="list-style-type: none"> - The sensors cables are correctly connected and in good working condition - The origin sensors work properly (in home position, the red lights located on the sensors are off, otherwise they are on). - The driving belts are not broken on the integrated type or column type machines 	<ul style="list-style-type: none"> - Reconnect the wires or replace the damaged cables - Replace the sensors - Replace the damaged belt
The stylus assembly moves (X,Y) but the stylus does not	Check that : <ul style="list-style-type: none"> - The stylus is not blocked by anything - The solenoid is in good working condition (no overheating, short circuit...) 	<ul style="list-style-type: none"> - Disassemble the machine, clean it, lubricate it with the oil provided in your maintenance kit and re-assemble (see General layout in appendix) - Replace the solenoid
The marking quality is terrible : <ul style="list-style-type: none"> - The dots are not aligned 	Check that : <ul style="list-style-type: none"> - The part is correctly maintained during the entire marking process and the machine is correctly fastened - The marking speed is not too high compared with the marking to be made (size) - There is no backlash in the X and Y axes 	<ul style="list-style-type: none"> - Redo the marking after fastening the part and/or the machine properly - Reduce the marking speed - Please contact the after sales service
<ul style="list-style-type: none"> - The impacts are not regular 	<ul style="list-style-type: none"> - The distance between the stylus and the part is correct - The stylus pin is in good working condition - The stylus can move correctly - There is no backlash between the stylus pin guide and the stylus 	<ul style="list-style-type: none"> - Change the distance (see manual) - Replace the stylus - Clean the stylus pin guide and the stylus - Change the stylus pin guide

If you have checked everything and the system still does not work, please contact our after sales services.

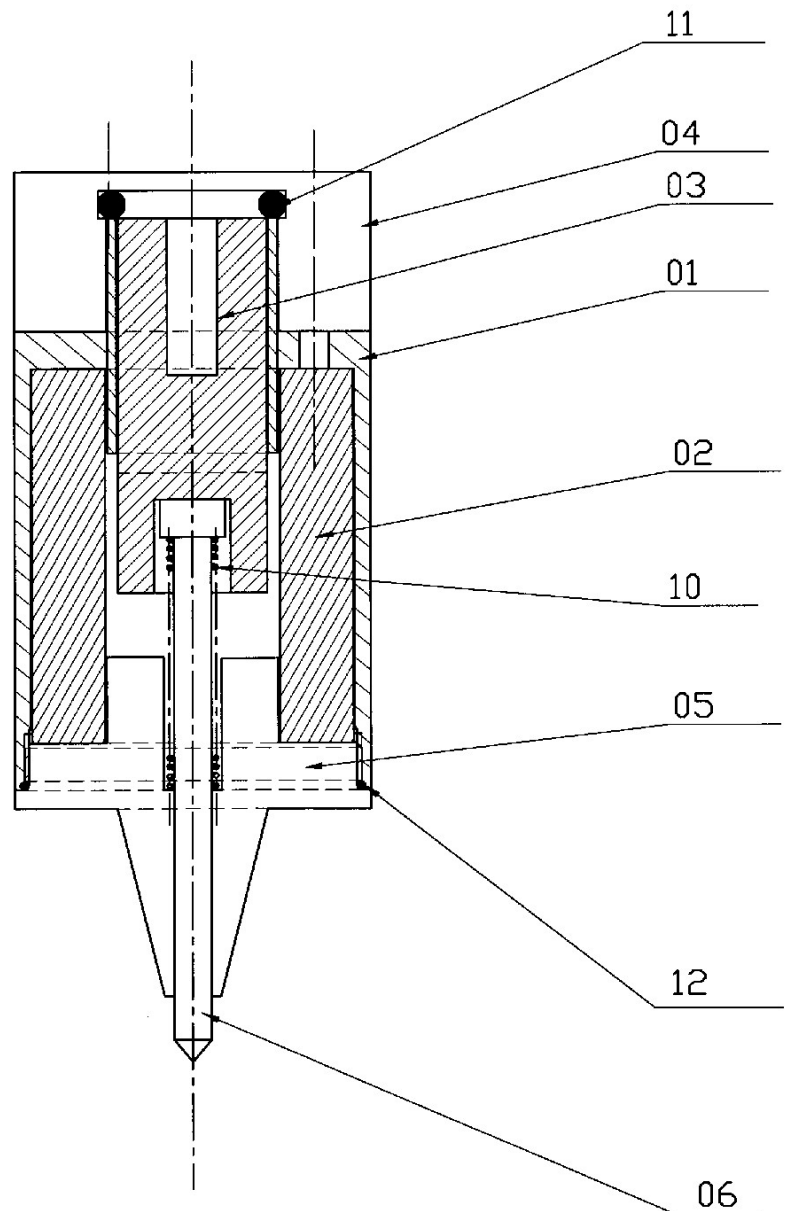
APPENDIX


1. STYLUS ASSEMBLY

1.1. General layout (overall dimensions)



1.2. General layout (References)



A	GS	20/12/2002	creation		MF
Rev.:	Designer :	Date :	Modification :		Approved :
Treatment :			Finition :		Gen. tol. :
 SIC MARKING 13 route de Limonest 69380 Lissieu - FRANCE Tél: (33) 04.72.54.80.00 Fax: (33) 04.78.47.39.40 www.SIC-MARKING.com			Material :	Qty :	Sca. :
			Assembly : stylus assembly		
			Name : terminology and references		
			N° 20.11.00 (US)		

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1.3. Terminology and references general layout

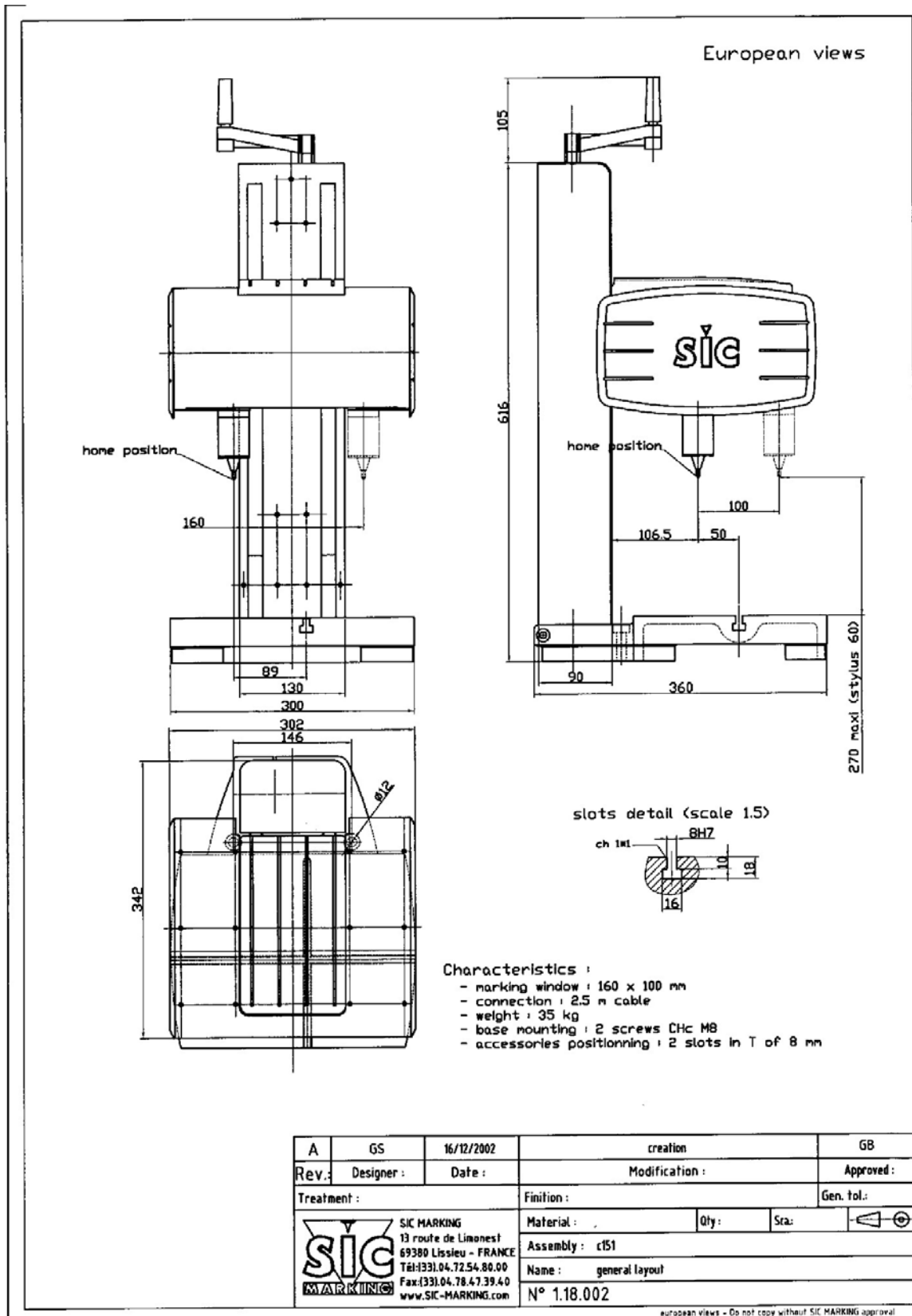
<i>REF</i>	<i>QTY</i>	<i>CODE</i>	<i>DESCRIPTION</i>
1	1		Body
2	1		Solenoid
3	1		Core
4	1		Support mount
5	1		Stylus guide I 60
6	1		Stylus pin I 60
10	1		Spring
11	1		O ring
12	1		Locking O ring

1.4. Terminology and references spare parts

<i>REF</i>	<i>QTY</i>	<i>CODE</i>	<i>DESCRIPTION</i>
1 à 4	1	3 200 003	Solenoid assembly
6	1	1 120 012	Stylus pin L 60
5	1	1 120 017	Stylus guide L 60
	1	1 120 013	Stylus pin L 80
	1	1 120 023	Stylus guide L 80
	1	1 120 014	Stylus pin L 100
	1	1 120 024	Stylus guide L 100
10	1	2 120 006	Spring

2. MARKING MACHINE

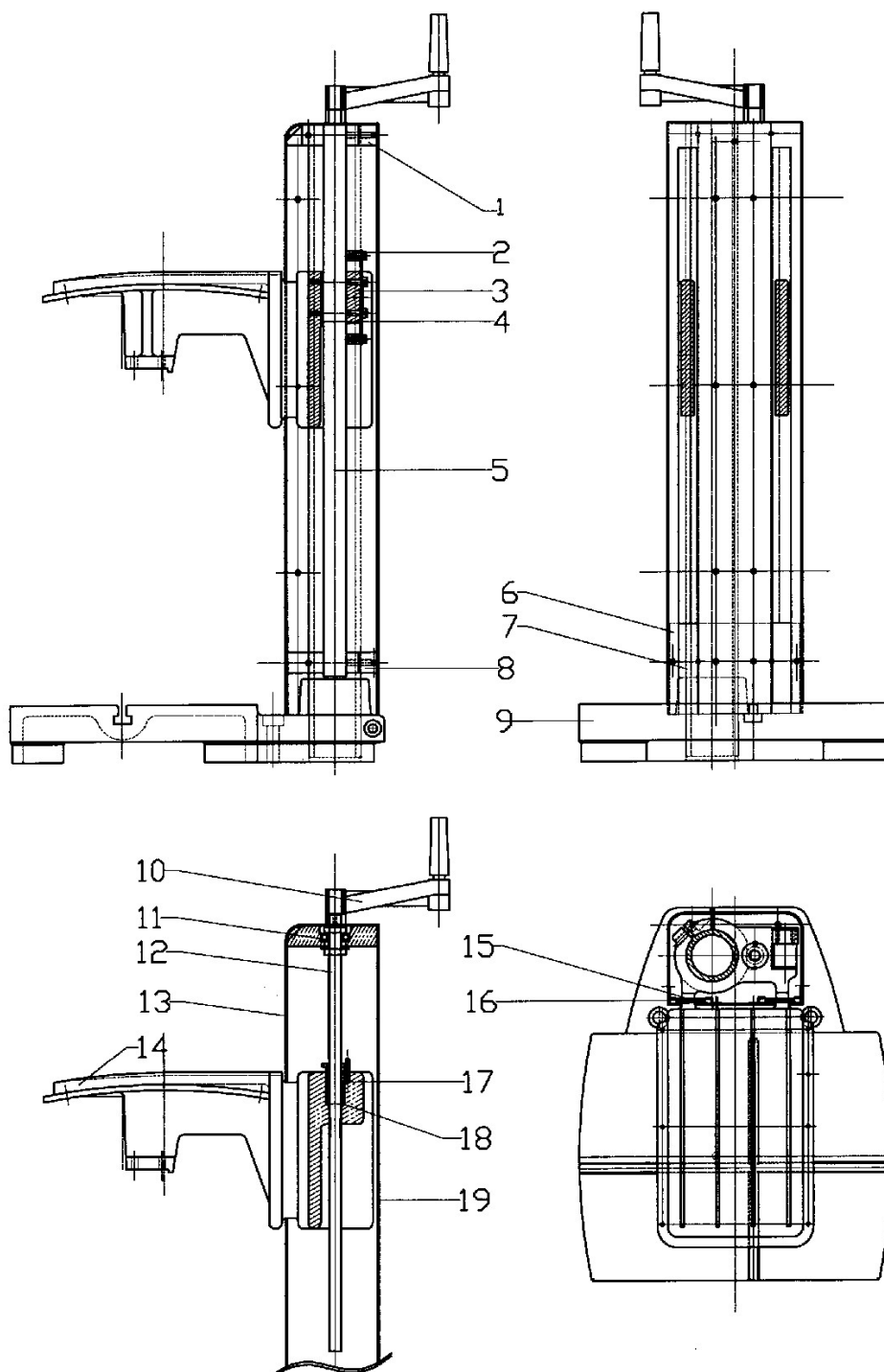
2.1. General layout (overall dimensions)




2.2. Terminology and references c151

<i>REF</i>	<i>QTY</i>	<i>CODE</i>	<i>DESCRIPTION</i>
	1	4 100 311	Column and base
	1	4 100 312	X-Y mechanism
	1	1 220 062	Cover with identification
	2	1 310 010	Side cap
	1	3 100 036	Power cable
	1	3 100 037	Intermediate cable
	2	3 100 038	X and Y motor cable
	1	1 220 017	Sheet metal 2 way connector support

2.3. Terminology and references c151 column and base

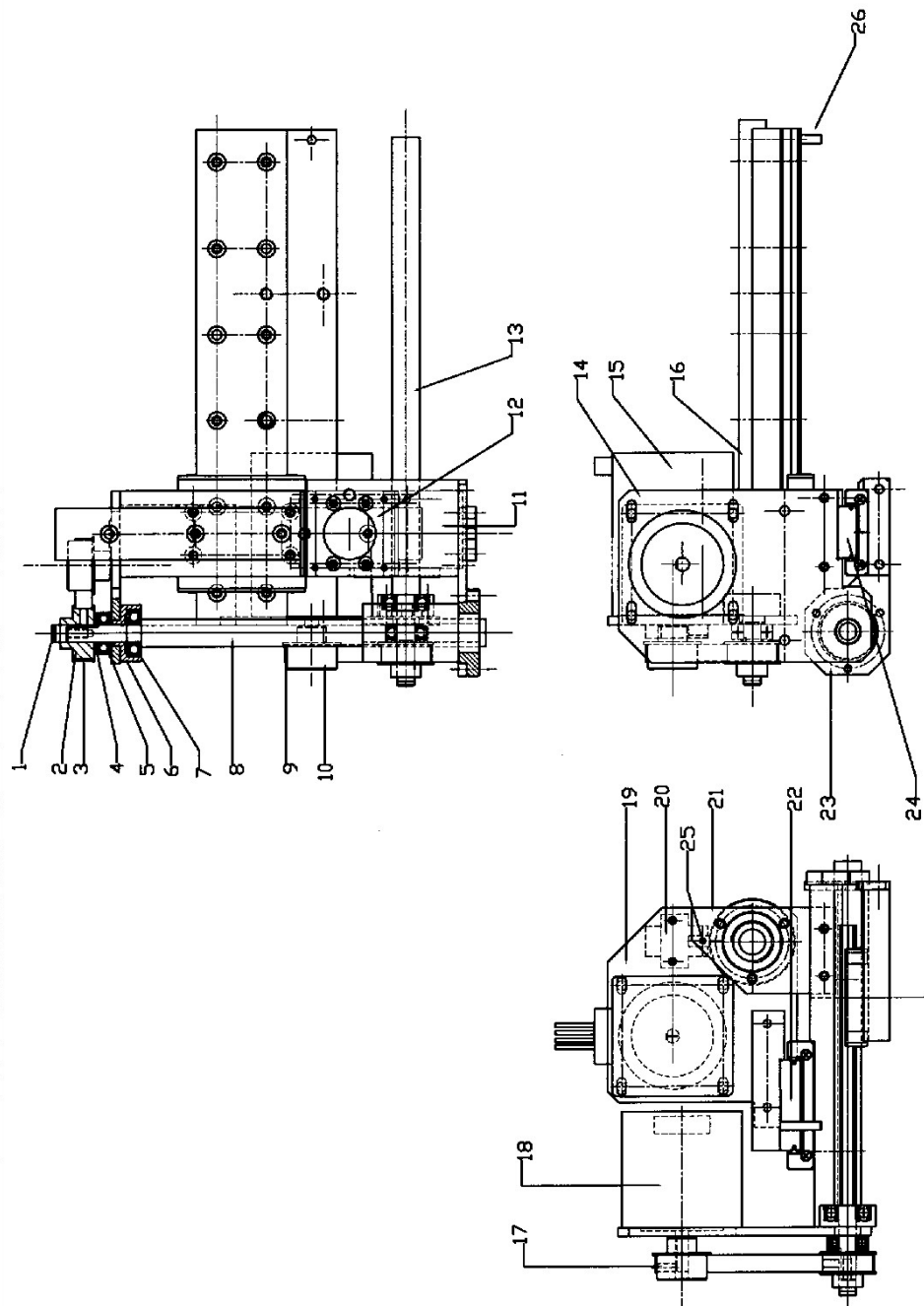




A	GS		creation	MF
Rev.	Designer :	Date :	Modification :	Approved :
Treatment :			Finition :	Gen. tol.:
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			Assembly :	Sca.:
			Name :	
			N° 1.15.001	

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<i>REF</i>	<i>QTY</i>	<i>CODE</i>	<i>DESCRIPTION</i>
9	1	1 390 004	Base
7	1	1 120 068	Column
14	1	1 310 009	Carriage and support frame
8	1	1 110 069	Lower support plate
1	1	1 110 070	Upper support plate
12	1	4 100 315	Lead screw + nut
5	1	1 120 069	Stop bar
13	1	1 220 060	Front cover
19	1	1 220 061	Rear cover
15	2	2 230 046	H-type brush
16	2	2 230 047	F-type brush
10	1	2 120 088	Crank wheel
17	1	1 120 074	Anti-backlash nut
18	1	2 120 083	Pre-stressed spring
11	2	2 120 089	6001ZZ ball bearing
2	1	1 220 055	Spring sheet metal
3	1	1 120 071	Friction plate
4	2	1 120 070	Locking key
6	1	1 220 054	Rear plate

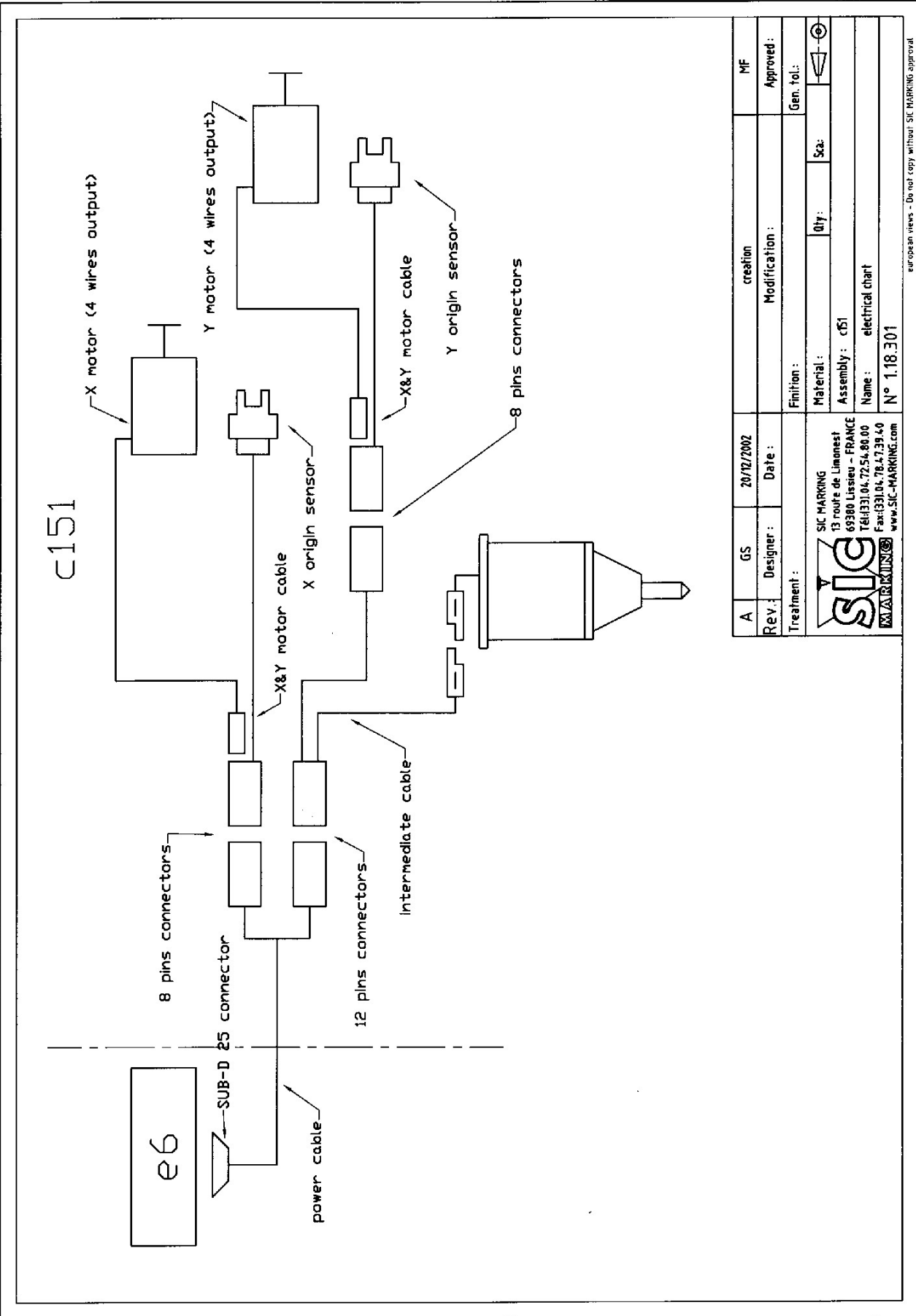
2.4. Terminology and references c151 X-Y table



A	GS	20/12/2002	creation	MF
Rev.	Designer :	Date :	Modification :	Approved :
Treatment :			Finition :	Gen. tol. :
<div><div>SIC MARKING 13 route de Limonest 69380 Lissieu - FRANCE Tél: 04.72.54.80.00 Fax: 04.78.47.39.40 www.SIC-MARKING.com</div></div>				
		Material :	Qty :	Sc :
Assembly : X-Y mechanism				
Name : terminology and references				
N° 1.17.001				
<div><div>SIC MARKING 13 route de Limonest 69380 Lissieu - FRANCE Tél: 04.72.54.80.00 Fax: 04.78.47.39.40 www.SIC-MARKING.com</div></div>				

<i>REF</i>	<i>QTY</i>	<i>CODE</i>	<i>DESCRIPTION</i>
16	1	1 110 066	X axis mount
11	1	1 110 067	Y axis mount
12	1	1 110 068	Y chariot
19	1	1 220 057	X motor mount
14	1	1 220 058	Y motor mount
21	1	1 220 058	X lead screw support
23	1	1 220 059	Y lead screw support
6	2	1 120 073	Bushing
13	1	4 100 316	X axis lead screw + nut mount
8	1	4 100 317	Y axis lead screw + nut mount
22	1	2 120 018	X guiding rail
24	1	2 120 016	Y guiding rail
15	1	2 230 055	Wired X motor
18	1	2 230 054	Wired Y motor
7	2	2 120 021	608ZZ ball bearing
5	2	2 120 080	Bearing
17	2	2 110 003	Pressure screw
1	2	1 120 019	Washer
10	2	2 120 010	Motor pulley
2	2	2 120 011	Axis pulley
9	1	2 120 023	X driving belt
3	1	2 120 035	Y driving belt
20	2	2 230 004	Origin sensor
4	2	2 120 022	Seal
25	1	2 110 005	detection screw
26	1	2 110 006	pin Ø4x32

2.5. electrical chart



2.6. Cabling plan

SUB D 25 connector	8 pins connector	12 pins connector	color	element
1		8	purple	solenoid 1
2		8	black	solenoid 1
4		1	brown & gray	Y axis motor (red)
5		2	white & gray	Y axis motor (yellow)
6		3	brown	Y axis motor (blue)
7		4	white	Y axis motor (orange)
8	1		yellow	X axis motor (red)
9	2		green	X axis motor (yellow)
10	3		brown & green	X axis motor (orange)
11	4		green & white	X axis motor (blue)
14		8	red	solenoid 1
15		8	blue	solenoid 1
16		12	white & yellow	Dallas bus
17	5	5	red & blue	"L" & "+" sensors
18	6	6	pink & gray	"-" sensors
19		11	yellow & brown	Dallas ground
20		7	red & white	X sensor
21	7		red & brown	Y sensor
22		9	blue & white	solenoid 2
23		9	brown & blue	solenoid 2
24		9	pink & brown	solenoid 2
25		9	pink & white	solenoid 2